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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/008,746	11/05/2001	Parapura T. Rajkumar	6175-045	5966

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EXAMINER

MCCARTNEY, LINZY T

ART UNIT	PAPER NUMBER
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2671

DATE MAILED: 11/19/2003

7

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/008,746

Applicant(s)

RAJKUMAR ET AL.

Examiner

Linzy McCartney

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 19 November 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6,8,10-14,18,21 and 25-28 is/are rejected.
- 7) ☒ Claim(s) 7,9,15-17,19,20,22-24 and 29-31 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 June 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 8.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Claim Objections***

1. The numbering of claims is not in accordance with 37 CFR 1.126 which requires the original numbering of the claims to be preserved throughout the prosecution. When claims are canceled, the remaining claims must not be renumbered. When new claims are presented, they must be numbered consecutively beginning with the number next following the highest numbered claims previously presented (whether entered or not).

Misnumbered claims 17-32 been renumbered 16-31.

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

1. Claim 10 recites the limitation "...predetermined selection criteria..." in line 5. There is insufficient antecedent basis for this limitation in the claim. Claim 11 is dependent on claim 10 and therefore includes all the limitations of claim 10, thereby rendering claim 11 indefinite.

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,417,865 to Bou.

- a. Referring to claim 1, Bou discloses automatically analyzing a plurality of candidate orientations to select a preferred orientation for creation of a reproduction of a first component (column 6, line 67 - column 7, line 8; column 5, lines 35 - 43) and creating a new component of a three-dimensional object that is a reproduction in the preferred orientation of the first component, the new component being created based on a position of the first component with respect to a surface positioned in the three-dimensional modeling space (column 5, lines 35 - 43). Bou does not explicitly disclose receiving data to select a first component of the three-dimensional object. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to modify the method of Bou by receiving data to select a first component of the three-dimensional object, Official Notice taken. The suggestion/motivation for doing so would have been because it would allow a user to manipulate a part of three-dimensional object.
  - b. Apparatus of claim 2 performs steps recited in method claim 1; therefore they are similar in scope and rejected under the same rationale.
  - c. Referring to claim 3, Bou discloses receiving input from a user to position the surface in the three-dimensional modeling space (column 5, lines 25-26).
3. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bou in view of U.S. Patent No. 5,237,647 to Roberts et al. (Roberts).
  - a. Referring to claim 4, Bou does not explicitly disclose the surface comprises a plane logically separating the modeling space into a first and a second section; and the first component is positioned in the first section of the modeling space; and creating the new component comprises creating the new component in the second section. Roberts

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discloses the surface comprises a plane logically separating the modeling space into a first and a second section (Fig. 23); and the first component is positioned in the first section of the modeling and creating the new component comprises creating the new component in the second section (column 17, lines 6-14). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to modify the method of Bou by separating the modeling space into a first and second section using a plane wherein the first component is positioned in the first section and creating the new component in the second section as taught by Roberts. The suggestion/motivation for doing so would have been because it would facilitate the creation and modification of a design (Roberts, column 5, lines 64-65).

4. Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bou in view of Roberts as applied to claim 4 above further in view of U.S. Patent No. 4,701,752 to Wang.

a. Referring to claim 5, Bou does not explicitly disclose the first component comprises a first plurality of vertices; and creating the new component comprises determining a second plurality of vertices each vertex in the second plurality corresponding to a vertex in the first plurality, and each vertex in the second plurality being determined based on a position of said corresponding vertex with respect to the plane. Wang discloses the first component comprises a first plurality of vertices (Fig. 2) and creating the new component comprises determining a second plurality of vertices each vertex in the second plurality corresponding to a vertex in the first plurality (Fig. 3; column 6, lines 17-19). Roberts discloses the second object being determined based on a

position of said corresponding first object with respect to the plane (column 16, line 67 – column 17, line 14). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to modify the method of Bou by the components comprising vertices and the position of the vertices being determined based upon a position of the corresponding vertices with respect to the plane as taught by Wang. The suggestion/motivation for doing so would have been because it would allow the user to specify the angle of the plane in which the mirror image is generated (Wang, column 1, lines 59-62).

b. Referring to claim 6, Bou does not explicitly disclose creating such that the first and the new component are in symmetrical position with respect to the plane. Wang discloses creating such that the first and the new component are in a symmetrical position with respect to the plane (Fig. 3).

5. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bou as applied to claim 1 above further in view of Schlieve, “Illustrated AutoCAD Release 11” (Schlieve).

a. Referring to claim 8, Bou does not explicitly disclose the first component comprises a plurality of first sub-components; and creating the new component comprises creating a plurality of new sub-components, each of the new sub-components corresponding to one of the first sub-components. Schlieve discloses the first component comprises a plurality of first sub-components (page 80, see Figure) and creating the new component comprises creating a plurality of new sub-components, each of the new sub-components corresponding to one of the first sub-components (page 80, paragraph 1; see Figure; page 82, step 7 and Figure). At the time the invention was made, it would have

been obvious to a person of ordinary skill in the art to modify the method Bou by the first component comprising a plurality of sub-components and creating new components comprising a plurality of new sub-components which correspond to the first sub-components as taught by Schlieve. The suggestion/motivation for doing so would have been because it would provide a convenient way to duplicate any entity of group of entities (Schlieve, page 80, paragraph 1).

6. Claims 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Roberts in view of U.S. Patent No. 6,323,859 to Gantt.

a. Referring to claim 12, Roberts discloses positioning a plane in the three-dimensional modeling space to logically subdivide the modeling space into a first division comprising a first component and a second division in which a reproduction of the first component is to be located and to define a reference geometry for creation of the reproduction of the first component (column 17, lines 6-14; Fig. 23) and constructing the reproduction of the first component such that the first component and the reproduction are symmetrical to each other with respect to the plane (column 17, lines 6-14). Roberts does not explicitly disclose computing a plurality of geometrically transformed components by applying a plurality of different transformations to the first component, each transformed component comprising a different orientation of the first component. Gantt discloses computing a plurality of geometrically transformed components by applying a plurality of different transformations to the first component, each transformed component comprising a different orientation of the first component (column 16, lines 5-25; Fig. 13C). At the time the invention was made, it would have been obvious to a

person of ordinary skill in the art to modify the method of Bou by applying a plurality of different transformations to the first component, each comprising a different orientation as taught by Gantt. The suggestion/motivation for doing so would have been because it would save time and increase productivity (Gantt, column 6, lines 29-32).

b. Apparatus of claim 13 performs steps recited in method claim 12; therefore they are similar in scope and rejected under the same rationale.

7. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Roberts in view of Gantt as applied to claim 12 above further in view of Bou.

a. Referring to claim 14, Roberts does not explicitly disclose determining a preferred geometric transformation of the first component for use in constructing the reproduction by comparing locations of geometric features of the transformed components. Bou discloses determining a preferred geometric transformation of the first component for use in constructing the reproduction by comparing locations of geometric features of the transformed components (column 4, lines 11-37). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to further modify the method of Roberts by determining a preferred transformation by comparing geometric features as taught by Bou. The suggestion/motivation for doing so would have been because it would improve the placing objects in a graphics system (Bou, column 1, line 61 – column 2, line 9).

8. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Roberts in view of Gantt as applied further in view of Bou as applied to claim 14 above further in view of Wang.

- a. Referring to claim 18, Roberts discloses computing a plurality of mirrored objects, each mirrored object corresponding to one of the first plurality of objects such that each mirrored object and said corresponding one of the plurality of objects are equidistant to the plane and positioned on different sides of the plane (column 16, lines 67 – column 17, line 14). Roberts does not explicitly disclose the objects are comprised of vertices, comparing the locations of geometric features, or for each one of the transformed components computing an acceptance value based on a difference between locations of the vertices. Wang discloses objects comprised of vertices (Fig. 2). Bou discloses computing an acceptance value based on a difference between locations, the acceptance value indicative of a preferred transformation (column 6, line 67 – column 7, line 8). At the time invention was made, it would have been obvious to a person of ordinary skill in the art to modify the method of Roberts by comprising the objects with vertices and computing an acceptance value based on a difference between locations, the acceptance value indicative of a preferred transformation as taught by Wang and Bou, respectively. The suggestion/motivation for doing so would have been it would allow the user to specify the angle of the plane in which the mirror image is generated (Wang, column 1, lines 59-62) and because it would improve the placing objects in a graphics system (Bou, column 1, line 61 – column 2, line 9).
9. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Roberts in view of Gantt further in view of U.S. Patent No. 6,212,484 to Chen further in view of Elliott et al, “Inside 3D Studio MAX 2” (Elliott).

a. Referring to claim 21, Roberts does not explicitly disclose storing a data structure associating the first component and the reproduction; and initiating an update of the reproduction in response to a change in the structure of the first component. Chen discloses storing a data structure associating the first component and the reproduction (column 5, lines 59-64). Elliott discloses initiating an update of the reproduction in response to a change in the structure of the first component (page 34, paragraph 1). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to further modify the invention of Roberts associating the first component and the reproduction and updating the reproduction in response to a change in the structure as taught by Chen and Elliott respectively. The suggestion/motivation for doing so would have been to avoid processing the feature equation when mirroring a part (Chen, column 2, lines 1-17) and because it would save considerable effort (Elliott, page 34, paragraph 1).

10. Claims 25-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bou in view of Wang.

a. Referring to claim 25, Bou discloses a processing unit coupled to a program storage medium (Fig. 1), the program storage medium comprising instructions to configure the processor to: calculate a plurality of orientations for a first component with respect to a plane (column 4, lines 29-37; column 5, lines 35-43); compute a plurality of deviation values, one deviation value computed for each object of each one of the plurality of orientations and a corresponding second object (column 6, line 66- column 7, line 7). Bou does not explicitly disclose each of the plurality of orientations is comprised

of vertices or calculating a plurality of reflected vertices. Wang discloses creating an object comprised of vertices (Fig. 2) and calculating a plurality of reflected vertices (Fig. 3; column 6, lines 17-19). At the time the invention was made, it would have been obvious to one of ordinary skill in the art to modify the system of Bou by comprising the objects of vertices and calculating a plurality of reflected vertices as taught by Wang. The suggestion/motivation for doing so would have been because it would allow the user to specify the angle of the plane in which the mirror image is generated (Wang, column 1, lines 59-62).

b. Referring to claim 26, Bou discloses computing one of the plurality of deviation amounts equal to a result considered zero; and construct the first reproduction by replicating the first component (column 4, lines 11-37).

c. Referring to claim 27, Bou discloses computing the plurality of deviation amounts equal to a result considered non-zero; and construct the first reproduction by reflecting the first component (column 4, lines 11-37).

11. Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bou in view of Wang as applied to claim 27 above further in view of Gantt.

a. Referring to claim 28, Bou does not explicitly disclose constructing a plurality of transformations; and applying each one of the plurality of transformations to a plurality of geometric features of the first component. Gantt disclose constructing a plurality of transformations and applying each one of the plurality of transformations to a plurality of geometric features of the first component (column 16, lines 5-25; Fig. 13C). At the time the invention was made, it would have been obvious to one of ordinary skill in the art to

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modify the method of Bou by constructing and applying a plurality of transformations as taught by Gantt. The suggestion/motivation for doing so would have been because it would save time and increase productivity (Gantt, column 6, lines 29-32).

***Allowable Subject Matter***

12. Claims 7, 9, 15-17, 19, 20, 22-24, and 29-31 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Linzy McCartney** whose telephone number is **(703) 605-0745**.

The examiner can normally be reached on Mon-Friday (8:00AM-5:30PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Mark Zimmerman**, can be reached at **(703) 305-9798**.

**Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks

Washington, D.C. 20231

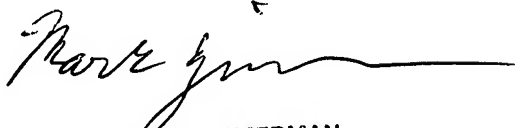
**or faxed to:**

**(703) 872-9314 (for Technology Center 2600 only)**

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

ltm  
13 November 2003

  
MARK ZIMMERMAN  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600